Service
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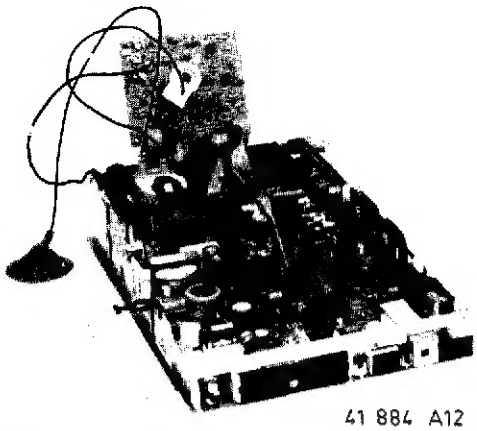

41 884 A12

Service Manual

TECHNICAL DATA

Mains voltage	: 220-240 V ~ (± 10%)
Aerial input impedance	: 75 Ω - coax
Minimum aerial input VHF	: 30 µV
Minimum aerial input UHF	: 40 µV
Maximum aerial input	: 100 mV
Pull-in range colour cync	: +300 Hz/–300 Hz
Pull-in range horizontal sync	: +600 Hz/–600 Hz
Pull-in range vertical sync	: +5 Hz/–5 Hz

CONTENTS

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Servicic

Subject to modification
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CS 8 414 GB

WARNINGS

1. Safety regulations demand that the set be restored to its original condition and that components identical to the original types be used.
   Safety components are marked by the symbol ⚠.
2. In order to preclude damage to ICs and transistors flashover of the EHT should be avoided.
   To prevent damage to the picture tube, the method indicated in fig. 1 should be followed in case of discharge.
   Make use of a high-tension probe and a universal meter (mode DC-V).
   Discharge until the meter reads 0 Volts (after approx 30 s).

3. **ESD**

   All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
   Careless handling during repair can reduce life drastically.
   When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
   Keep components and tools also at this potential.
4. Together with the deflection unit and the possible multipole unit the flat square picture tubes applied form one whole. The deflection and multipole units have been adjusted in an optimum way in the factory. Adjustment of these units during repair is thus not recommended.
5. A set to be repaired should always be connected to the mains via a suitable isolating transformer.
6. Proceed with care when testing the EHT section and the picture tube.
7. Never replace any modules or other parts while the set is switched on.
8. Wear safety goggles during replacement of the picture tube.
9. Use plastic instead of metal alignment tools.
   This is in order to preclude short-circuits or to prevent a specific circuit from being rendered unstable.
10. On chassis versions up to and including issue number 3 the wires of the connecting cables are at both sides connected to the same pin numbers.
    This contrary to cables used in chassis versions having a higher issue number and in other types of sets.
    Exchange of cables of chassis versions up to and including issue number 3 by cables of versions having a higher issue number or cables from different types of sets is thus not allowed.

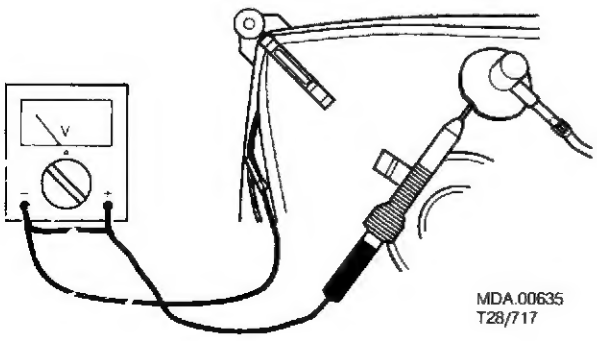


Fig. 1

REMARKS

1. In case of faultfinding and/or repairs on the modules the accessibility of circuits and components can be enlarged by making use of extension PCBs.
   The ordering numbers for these extension PCBs are:

4-fold	4822 395 30262
5-fold	4822 395 30261
6-fold	4822 395 30259
8-fold	4822 214 31402

2. The direct voltages and waveforms should be measured relative to the nearest earthing point on the p.c. board.
3. The direct voltages should be measured as follows:
   Do not apply an aerial signal. Adjust receiver for minimum brightness, maximum saturation and contrast.
4. The waveforms should be measured under the following conditions:
   a. Use a colour-bar pattern as input signal. (PM5519).
   b. Connect an oscilloscope (0,1 V/div.-DC) to point 5 of IC7260 via an 10:1 attenuator probe.
      Set the saturation control to obtain 2,6V d.c..

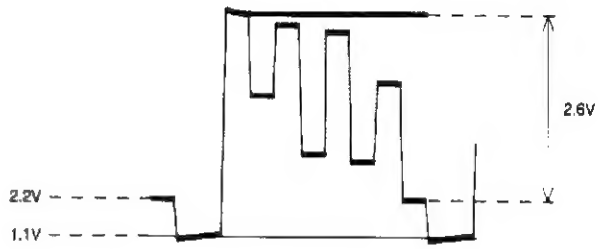


Fig. 2

   c. Connect the oscilloscope to point 17 of IC7260.
   d. Set the brightness control so that the level of the black bar in the video signal is situated at 2,2V (see Fig. 2).
   e. Set the contrast control for a video signal amplitude of 2,6 V.
5. The CRT board is provided with printed spark gaps. Each spark gap is arranged between an electrode of the CRT and the aquadag coating.
6. In the production alternative semi-conductors may be used.
   However the semi-conductors specified in the parts list and circuit diagram can always be used as replacements.
7. Connectors used for the modules (board to board) have been gold-plated and must be replaced by the same type only.

MECHANICAL INSTRUCTIONS

1. To facilitate troubleshooting and repairing the set the chassis can be pulled out of the cabinet and placed against the right-hand side of the set.
2. After prizing up the clamping ring K with a screwdriver or side-cutting pliers the EHT and focus cable may be pulled off the line output transformer (see Fig. 3).
   When refitting the cable first press the clamping ring onto the transformer until a click is heard; after this the cable may be pressed in place.
   Make sure that the cable is pressed down well.

ELECTRICAL ADJUSTMENTS

A. ADJUSTMENTS TO THE MAIN PANEL (Fig. 4)

1. +140V power supply voltage

Connect a voltmeter (DC) between pin 2 of connector R13 and ground.
Adjust 3670 for a voltage of 140V.

2. Horizontal synchronisation

Remove the screening cap of IF/SYNC unit 1001.
Apply an aerial signal. Interconnect points 5 and 9 of item 7038 (IF/SYNC unit).
Adjust 3055 until the picture is stationary.
Remove the interconnection.
Locate the screening cap.

3. Horizontal centring

This is adjusted with 3038 (IF/SYNC unit).

4. Vertical centring

This is adjusted with 1566.

5. Picture height

The picture height is adjustable with 3576.

6. Focussing

This is adjusted with the focussing potentiometer on the line output transformer (fig. 3).

7. V_{G2} adjustment

Adjust brightness and contrast for 2V.
Apply a black frame signal.
Connect an oscilloscope to the Red cathode of the picture tube.
Adjust with the G2 potentiometer on the line output transformer (see Fig. 3) the black level for 130V.

8. Chroma subcarrier oscillator

Apply a colour-bar pattern.
Interconnect points 24 and 25 of IC7260.
Connect a 470 Ω resistor between points 5 and 1 of IC7260.
Adjust 2267 so that colour pattern on the screen is practically stationary. Remove the resistor and the interconnection.

9. PAL delay line

Apply a generator signal from a PM5509 or PM5519. Set the generator to "DEM". Set contrast and brightness to normal and set the saturation control to 3/4 of its range. Adjust 3280 so that the venetian-blinds effect in the 3rd bar is minimal.
Subsequently, adjust 5270 until the venetian-blinds effect in de 1st and the 4th bar is also minimal.
Readjust 3280 if necessary.

10. Chroma trap in the luminance circuit

Use a colour-bar pattern and set the receiver controls to their normal settings.
Connect an oscilloscope to point 8 of IC7260 and adjust 5261 for minimum amplitude of the chrominance signal which is situated on the various brightness steps of the luminance signal.

11. RF-AGC

If the picture of a strong local transmitter is reproduced distorted, adjust potentiometer 3092 on IF/SYNC unit 1001, until the picture is no longer distorted. To achieve this the screening cap of the IF/SYNC unit has to be removed.

B. ADJUSTMENTS TO THE CRT BOARD

1. Picture width

The picture width is adjustable with 3591.

2. East-West correction

Is adjusted with 3592.

C. ADJUSTMENTS TO THE CCT DECODER

1. Connect pin 22 of IC7785 to ground.
   Adjust 2802 for a free-running frequency of 6.010 MHz +/– 2,5 kHz at pin 17 of IC7785.

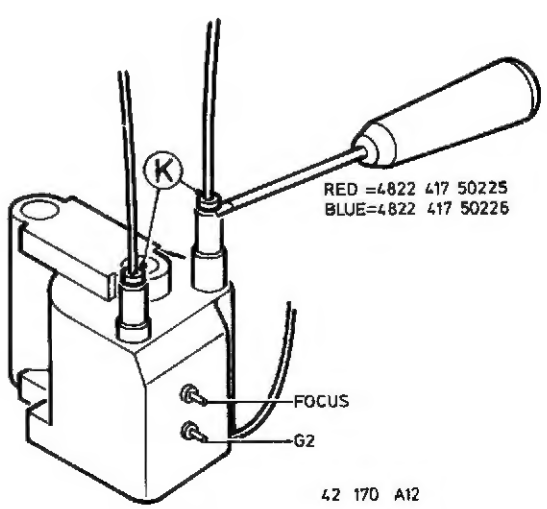


Fig. 3

CARRIER PANEL

CNX62	4822 130 90121
HCF4053BE	4822 209 71749
LA7910	4822 209 10892
LN524RAP	4822 130 90388
L7812CV	5322 209 86176
TDA3562A/N5	4822 209 71751
TDA8190	4822 209 70872
TEA1039/N4	4822 209 83104
TMP47C432AP	4822 209 72038

BC328	4822 130 44104
BC337	4822 130 40855
BC337-40	4822 130 41344
BC368	5322 130 44647
BC547C	4822 130 44503
BC548	4822 130 40938
BC548B	4822 130 40937
BC548C	4822 130 44196
BC558	4822 130 40941
BD227	5322 130 44661
BD437	4822 130 40982
BD438	4822 130 40995
BUT11AF	4822 130 42679
BU508A	4822 130 42164

BYD33D	4822 130 42488
BYD33G	4822 130 42489
BYD33J	4822 130 42606
BYV26C	4822 130 32343
BYV95A	4822 130 41601
BYV95B	4822 130 41486
BY228	4822 130 41275
BZX79-C3V9	4822 130 31981
BZX79-C4V7	4822 130 34174
BZX79-C5V6	4822 130 34173
BZX79-C6V2	4822 130 80303
CQS51-4	4822 130 80309
ZTK33B	4822 130 30959
1N4148-75	4822 130 33939
1N5061	4822 130 31933

5108	4822 157 53064	
5109	4822 157 53064	
5259	4822 157 52287	
5260	4822 157 53065	
5260	4822 157 52265	for amtsblatt
5261	4822 157 52807	
5262	4822 157 53093	
5270	4822 157 52808	
5271	4822 157 52055	
5608	4822 157 53069	
5611	4822 150 50073	line output
5620	4822 140 10325	line driver
5629	4822 140 10324	
5653	4822 157 53068	
5654	4822 148 60165	SOPS
5655	4822 157 51195	
5656	4822 157 51157	
5658	4822 157 51195	
5659	4822 157 53062	

3102	4822 111 30499	4.7 Ω	0.33W
3280	4822 100 20148	1 kΩ	potm.
3283	4822 111 30593	3.3 Ω	0.33W
3570	4822 116 51166	8.2 kΩ	2.5W
3571	4822 111 30821	3.9 Ω	0.5W
3576	4822 101 10818	100 Ω	potm.
3610	4822 116 30323	150 kΩ	NTC
3628	4822 111 30504	6.8 Ω	0.33W
3653	4822 116 40065		PTC
3656	4822 116 80288	100 kΩ	2W
3657	4822 115 10094	1.5 kΩ	7W
3660	4822 113 80429	0.1 Ω	2W
3667	5322 116 54272	1.5 kΩ	2.5W
3670	4822 100 10361	100 Ω	potm.
3672	4822 111 30483	1 Ω	0.33W
3875	4822 111 30593	3.3 Ω	0.33W
3944	4822 101 10819	50 kΩ	potm.

CARRIER PANEL

2113	4822 124 41334	470 µF 35 V
2123	4822 124 40435	10 µF 50 V
2267	4822 125 50045	20 pF trimm.
2521	4822 124 40434	22 µF 35V
2526	4822 124 40434	22 µF 35V
2610	5322 121 44357	7.5 nF 2kV
2611	4822 121 40479	390 nF 250V
2619	4822 121 41339	2.2 nF 2kV
2621	4822 124 22257	22 µF 250V
2652	5322 121 44222	330 nF 250V
2656	4822 124 22172	150 µF 385V
2663	4822 121 41531	1000 pF 250V
2668	4822 124 40724	1000 µF 35V
2670	4822 124 22257	22 µF 250V
2672	4822 124 40724	1000 µF 35V
2673	4822 124 40201	1000 µF 16V
2735	4822 124 40723	2200 µF 16V
2934	4822 122 32149	27 pF 100V
2935	4822 122 32149	27 pF 100V

1652	4822 253 30024	T1.6A
1653	4822 253 10046	T1.6A
1654	4822 253 10046	T1.6A

10J	4822 265 40596	2P
11B	4822 265 30389	2P
12G	4822 265 30407	3P
13R	4822 267 40722	6P
14R	4822 267 40722	6P
15G	4822 290 40295	7P
16R	4822 267 40665	3P
18G	4822 417 50217	4P
19G	4822 267 40648	5P
20G	4822 267 50591	6P
21G	4822 264 50148	8P

10J	4822 290 60626	2P
11B	4822 267 40653	2P
12G	4822 265 30273	3P
13R	4822 267 30546	6P
14R	4822 267 30546	6P
15G	4822 265 40252	7P
16R	4822 267 40653	2P
17	4822 264 50177	10P for coil cable
18G	4822 266 30276	4P
19G	4822 265 40503	5P
20G	4822 265 40469	6P
21G	4822 265 40471	8P

VARIOUS

1000	4822 212 22746	IR receiver
1001	4822 212 22739	SYNC/IF-B/G
1001	4822 212 22771	SYNC/IF-I
1001	4822 212 22769	SYNC/IF-Multi
1002	4822 210 10266	UV617
1002	4822 210 40278	UV617/E
1002	4822 210 10299	UV627
1002	4822 210 50118	U743
1030	4822 276 12056	mains-switch (SK1)
1059	4822 212 22738	keyboard foil assy.
1103	4822 121 40543	filter SFE5.5 MB
1103	4822 242 70279	filter SFE6.0 MB
1103	4822 242 71841	filter SFE6.0 MA
1104	4822 242 70714	filter SFE5.5 MA
1262	4822 157 51056	delay line DL330
1267	4822 242 70626	crystal 8.867238 MHz
1270	4822 320 40096	delay line DL701
1566	4822 273 50296	switch 3P
1901	4822 138 10032	battery 2.5V
1934	4822 242 70831	filter 4 MHz
	4822 256 30274	fuse holder
	4822 462 10281	headphone socket
	4822 267 60172	scart socket
	4822 492 63730	slide spring fix.transistor
	4822 492 63731	spring fix. transistor

PICTURE TUBE PANEL

BC337	4822 130 40855				
BC548B	4822 130 40937				
BC556	4822 130 40989				
BC558	4822 130 40941				
BF422	4822 130 41782				
BF423/01	4822 130 60703				
BF819	4822 130 42159				
BF869	4822 130 41773				

BAV21	4822 130 30842				
BYD33G	4822 130 42489				
1N4148-75	4822 130 33939				

5401	4822 157 50964				

3403	5322 116 53619	6.34	kΩ	0.6	W
3406	5322 116 53263	6.19	kΩ	0.6	W
3426	5322 116 80076	105	kΩ	0.6	W
3427	4822 116 80327	137	kΩ	5	W
3428	5322 116 80076	105	kΩ	0.6	W
3439	4822 116 52399	1.5	kΩ	0.5	W
3440	4822 116 52399	1.5	kΩ	0.5	W
3444	4822 116 52399	1.5	kΩ	0.5	W
3445	4822 116 80328	470	Ω	0.5	W
3591	4822 100 10051	22	kΩ	potm.	
3592	4822 100 10052	100	kΩ	potm.	
3599	4822 111 30526	47	Ω	0.33W	

2407	4822 122 33109	2.2 nF 1kV	

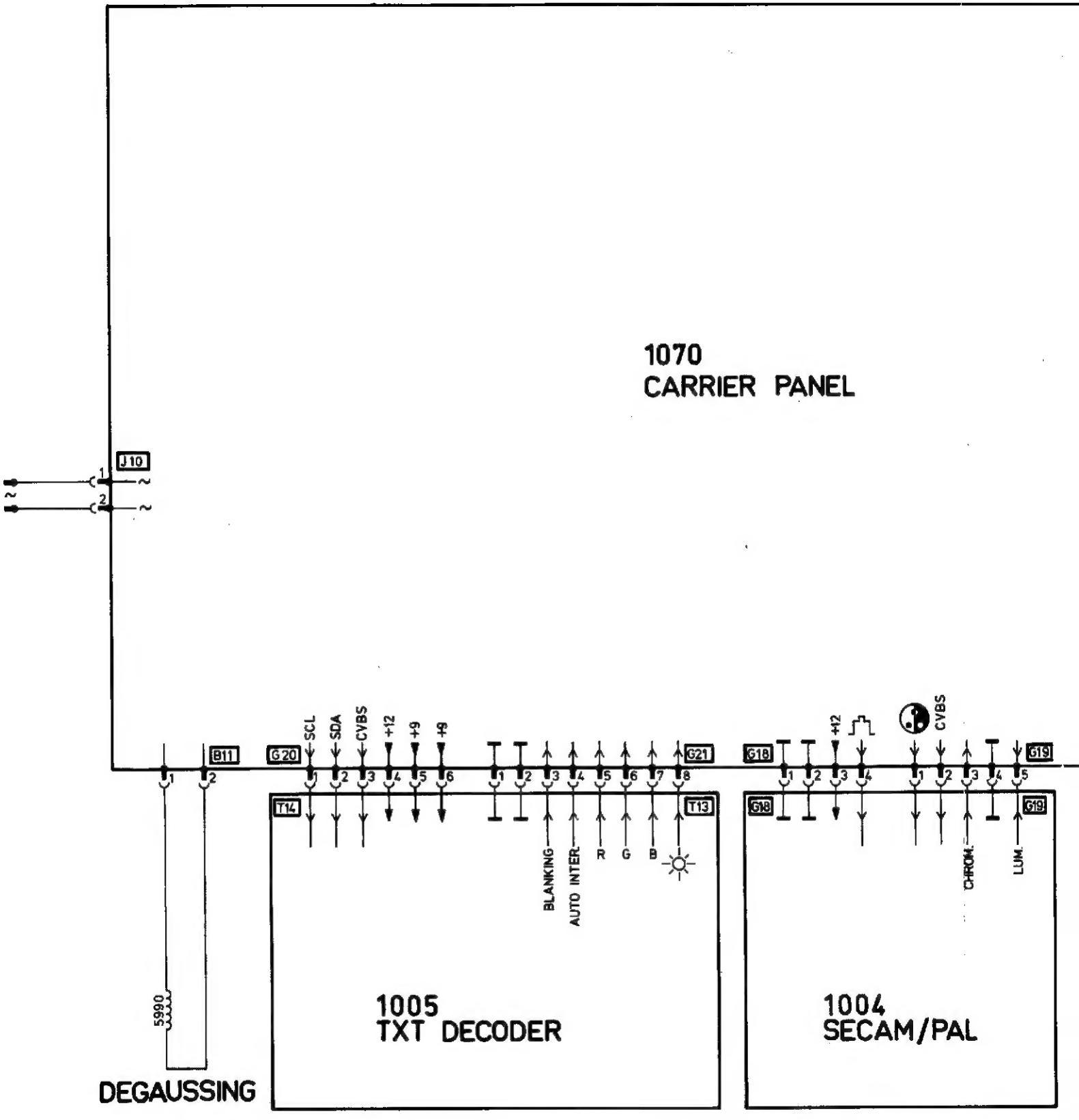
22G	4822 290 40295	7P	
23R	4822 267 40722	6P	

22G	4822 265 40252	7P	
23R	4822 267 30546	6P	
	4822 255 70216	socket PT	

MUTE PANEL

BC548B	4822 130 40937				
BC558B	4822 130 44197				

1N4148-30	4822 130 33941				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CARRIER PANEL
J10
B11
G20
SCL
SDA
CVBS
+12
+9
+9
G21
G18
+12
CVBS
G19
T14
T13
G18
G19
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AUTO INTER.
R
G
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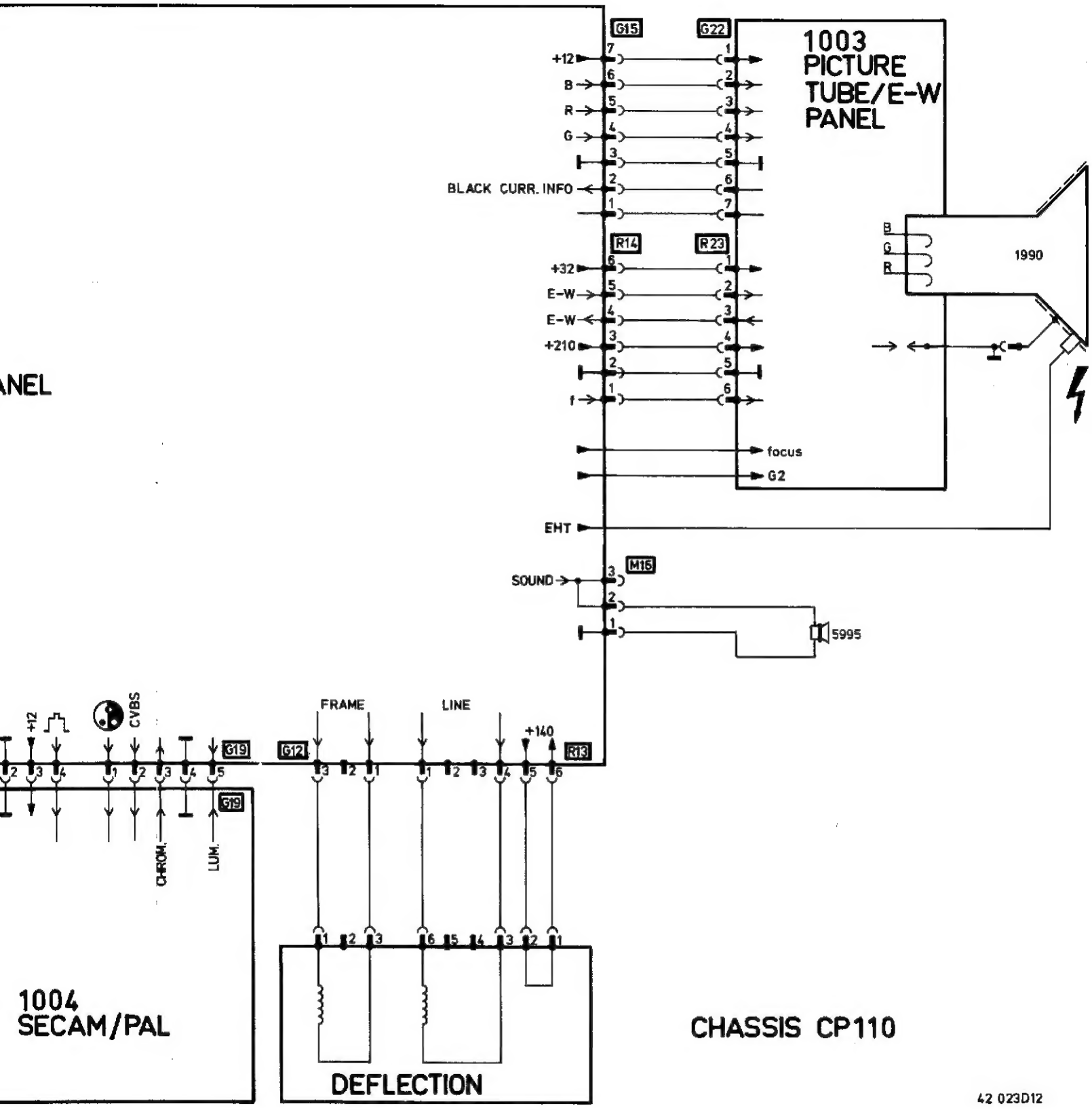
CHROM.
LUM.
5990
DEGAUSSING
1005
TXT DECODER
1004
SECAM/PAL


G15
G22
1003
PICTURE
TUBE/E-W
PANEL
+12
B
R
G
BLACK CURR. INFO
R14
R23
+32
E-W
E-W
+210
f
focus
G2
1990
EHT
M16
SOUND
5995
+12
CVBS
G19
G12
FRAME
LINE
+140
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LUM.
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SECAM/PAL
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CHASSIS CP110
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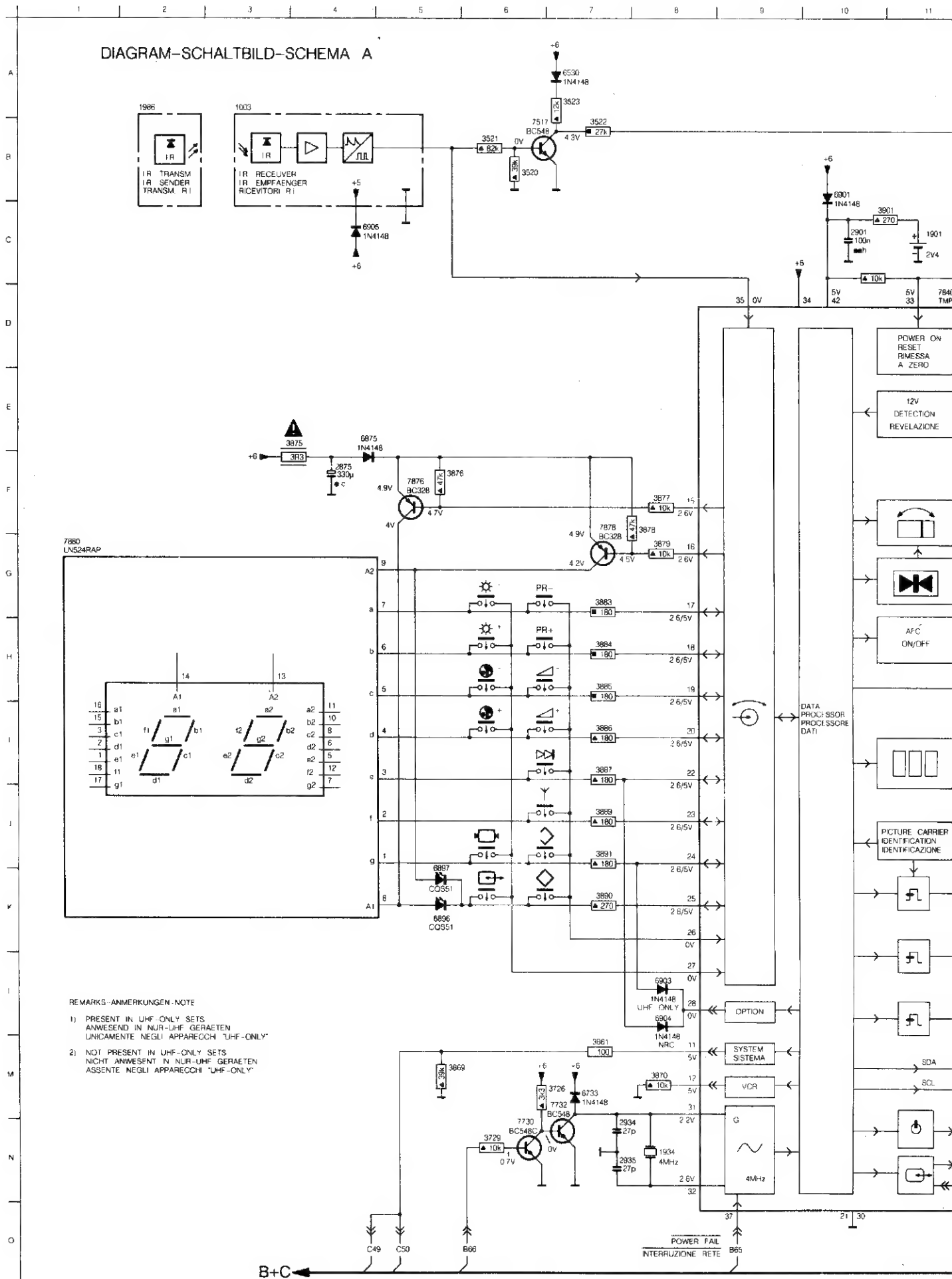
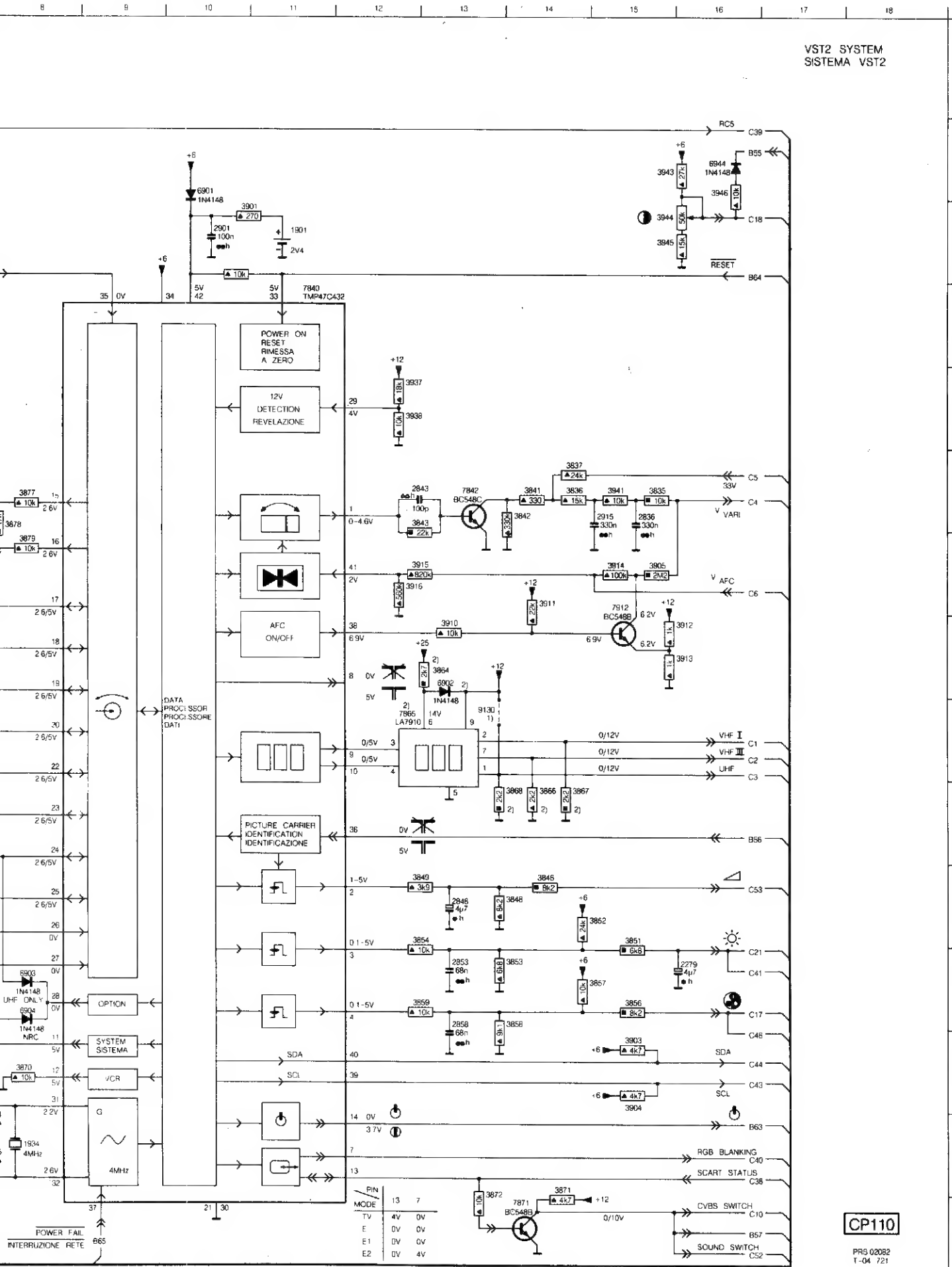
33 - 4822 209 73665 6



209 72038
209 73665 6

VST2 SYSTEM
SISTEMA VST2



CP110

PRS 02082
T-04 721

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1934	N	8
1986	A	2
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2843	F	12
2848	K	13
2853	L	13
2858	L	13
2875	F	4
2901	C	10
2915	F	15
2934	N	7
2935	N	7
3520	B	6
3521	B	6
3522	B	7
3523	A	7
3726	M	7
3729	N	6
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3836	F	14
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3849	K	12
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3857	L	15
3858	L	14
3859	L	12
3861	M	7
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3866	J	14
3867	J	14
3868	J	14
3869	M	5
3870	M	8
3871	N	14
3872	N	13
3875	E	4
3876	F	5
3877	F	6
3878	F	8
3879	G	8
3883	G	7
3884	H	7
3885	H	7
3886	I	7
3887	I	7
3889	J	7
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3905	G	15
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3913	H	16
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3916	G	12
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3938	E	12
3941	F	15
3943	B	15
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3945	C	15
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6733	M	7
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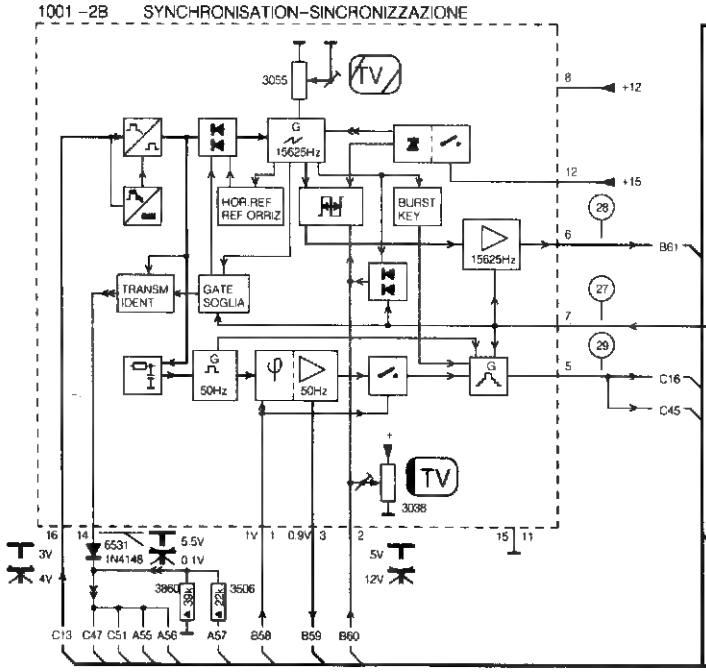
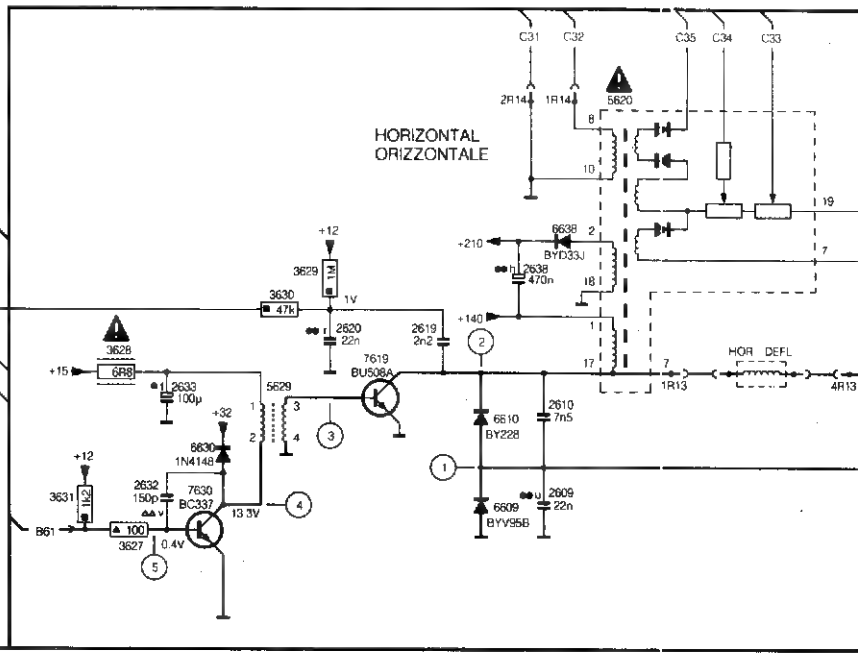
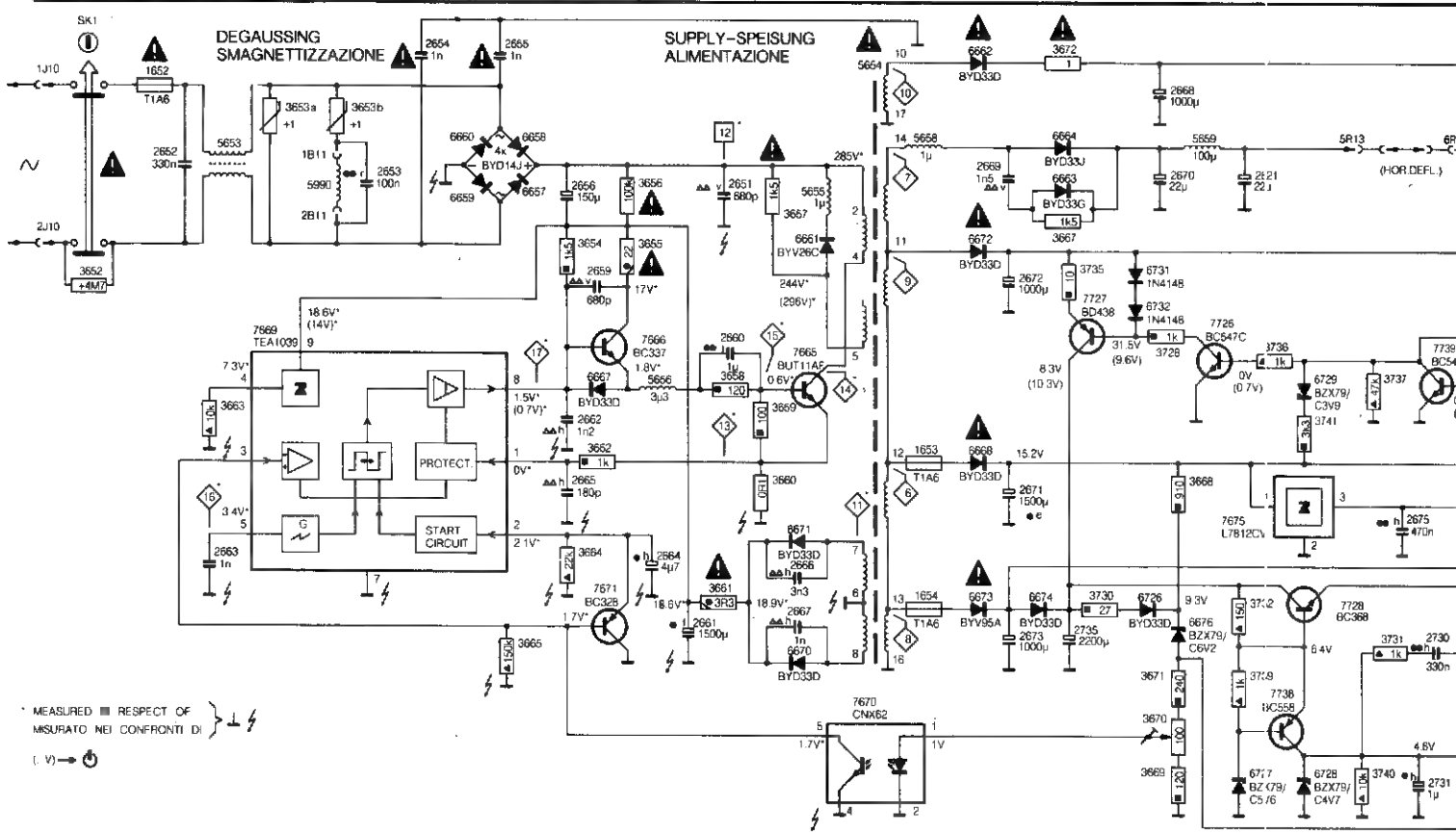
6896	K	5
6897	J	5
6901	B	10
6902	H	13
6903	L	8
6904	L	8
6905	C	4
6944	B	16
7517	B	6
7730	N	6
7732	M	7
7840	D	11
7842	F	13
7865	I	12
7871	D	14
7876	F	5
7878	F	7
7880	G	1
7912	G	15
9130	I	13

DIAGRAM–SCHALTBILD–SCHEMA B

1001 –2B SYNCHRONISATION–SINCRONIZZAZIONE







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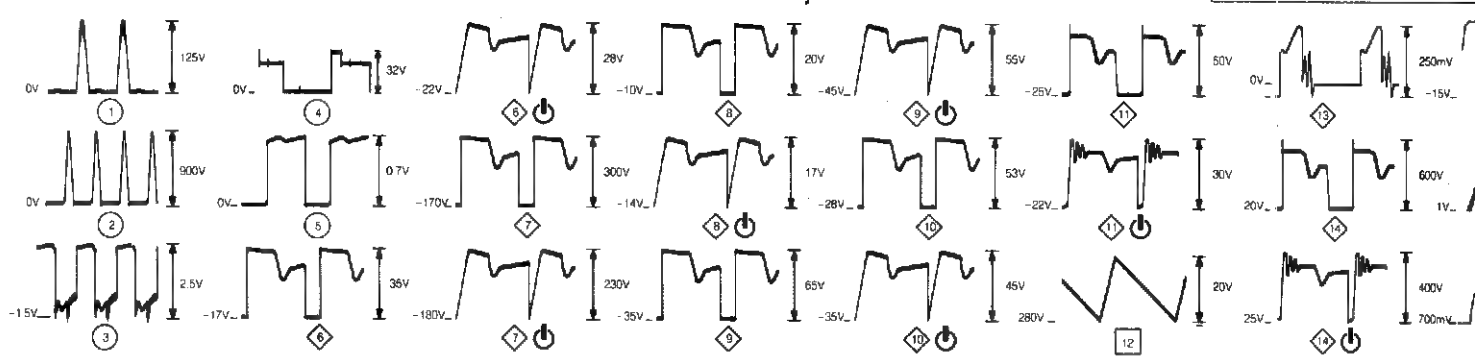

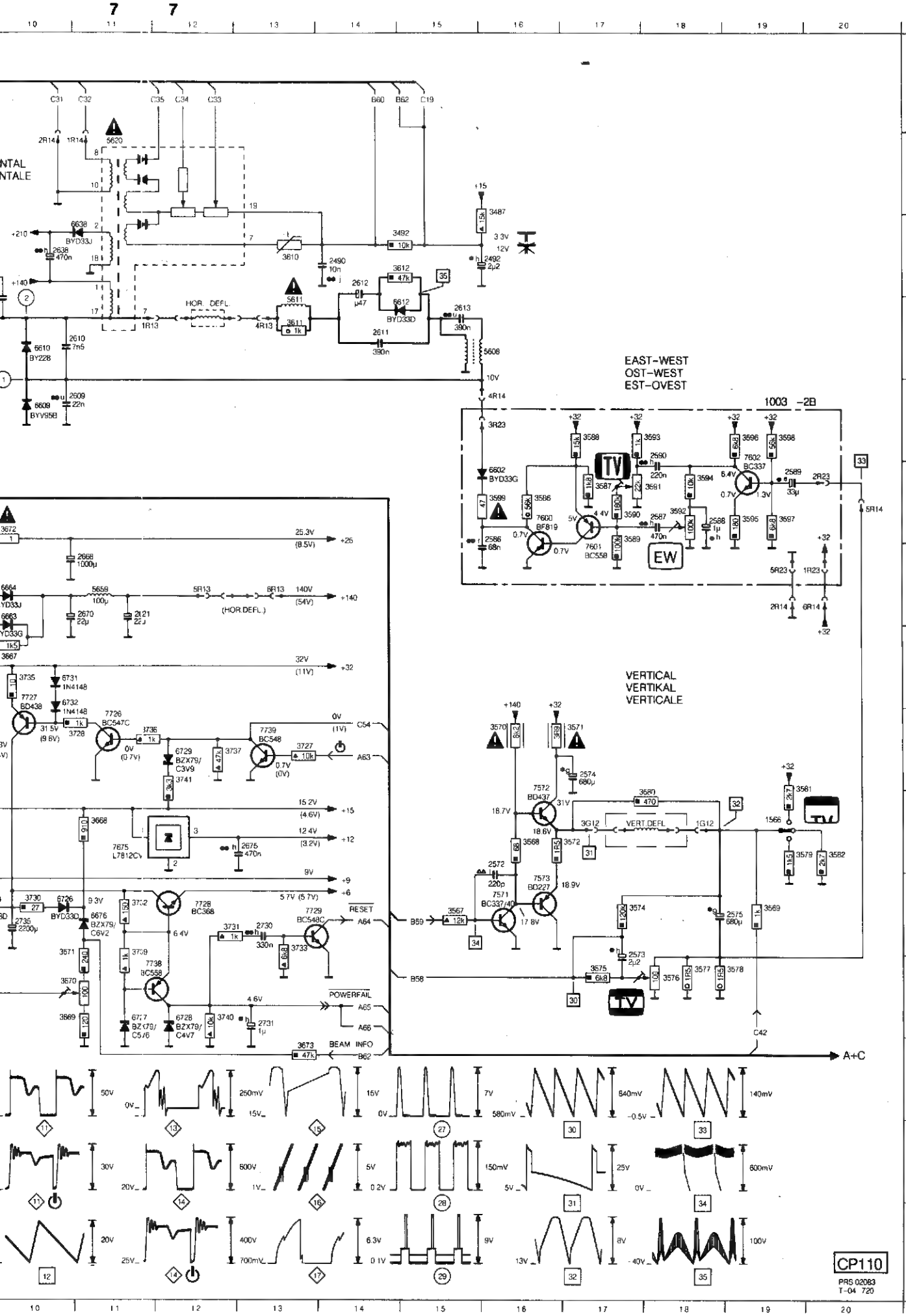

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	1003	E19	6658	G 5
	1566	J19	6659	H
	1652	G 2	6660	G 5
	1653	J 9	6661	H 8
	1654	K 9	6662	F 9
A	2490	C14	6663	G10
	2492	C16	6664	H10
	2572	J16	6667	I
	2573	K17	6668	J 9
	2574	I 17	6670	K 7
	2575	K19	6671	J 7
	2586	F16	6672	H 9
	2587	F18	6673	K 9
	2588	F18	6674	K 9
B	2589	F19	6675	K11
	2590	E18	6726	K10
	2609	E11	6727	L11
	2610	D11	6728	L12
	2611	D14	6729	I 12
	2612	C14	6731	H10
	2613	D15	6732	H10
	2619	C10	7571	K16
	2620	C 9	7572	L16
	2621	G11	7573	K16
C	2632	E 7	7600	F16
	2633	D 8	7601	G17
	2638	C10	7602	E19
	2651	G 7	7619	D 9
	2652	G 2	7630	E 8
	2653	G 4	7665	I 8
	2654	F 5	7666	I 6
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	2668	G11		
E	2669	G 9		
	2670	G11		
	2671	J 9		
	2672	H 9		
	2673	K 9		
	2675	J 13		
	2730	K13		
	2731	L13		
	2735	K10		
	3038	E 4		
F	3050	D 3		
	3055	A 3		
	3487	B16		
	3492	C15		
	3506	E 3		
	3567	K15		
	3568	J16		
	3569	K19		
	3570	I 16		
G	3571	I 17		
	3572	J17		
	3574	K17		
	3575	L17		
	3576	L18		
	3577	L18		
	3578	L19		
	3579	J20		
	3580	J18		
	3581	I 20		
H	3582	J20		
	3586	F18		
	3587	F17		
	3588	E17		
	3589	F17		
	3590	F17		
	3591	F18		
	3592	F18		
	3593	E18		
I	3594	F18		
	3595	F19		
	3596	E19		
	3597	F19		
	3598	E19		
	3599	F16		
	3610	C13		
	3611	D13		
	3612	C15		
	3627	E 7		
J	3628	D 7		
	3629	C 9		
	3630	C 8		
	3631	E 7		
	3652	H 2		
	3654	H 6		
	3655	H 6		
	3656	G		
	3657	H 7		
K	3658	I 7		
	3659	I 7		
	3660	J 7		
	3661	K 7		
	3662	J		
	3663	I 3		
	3664	J 6		
	3665	K 5		
	3667	H10		
	3668	J11		
L	3669	L10		
	3670	L10		
	3671	K10		
	3672	F10		
	3673	M13		
	3727	I 13		
	3728	I 11		
	3730	K10		
	3731	K12		
	3732	K11		
M	3733	K13		
	3735	H10		
	3736	I 11		
	3737	I 13		
	3739	K11		
	3740	L12		
	3741	I 12		
	3860	E 2		
	5608	D16		
N	5611	D13		
	5620	B11		
	5629	D		
	5653	G 3		
	5654	F 6		
	5655	H 8		
	5656	I 6		
	5658	G 9		
	5659	G11		
	5990	D 4		
O	6531	E 2		
	6602	F16		
	6609	E10		
	6610	D10		
	6612	D15		
	6630	D 6		
	6638	C11		

1001	C 3	1270	B12	2104	K14	2114	K19	2260	B 8	2274	B14	2292	F14	2405	G18	2523	L14	3101	I 18	3115	K20	3265	J 8	3283	F 8	3403	B16	3413	H16	3422	E
1002	C 1	1990	D21	2105	K14	2115	J20	2261	B 7	2275	F 8	2295	G10	2406	A16	2524	L 4	3102	I 20	3121	K18	3267	F13	3284	B10	3404	G16	3414	G16	3423	
1003	A15	2003	E 1	2106	K16	2116	K17	2263	C 8	2278	E 8	2296	F15	2407	E20	2525	L 5	3103	J13	3122	K18	3269	F13	3285	B11	3405	E16	3415	G15	3424	G
1004	M13	2004	E 1	2107	I16	2118	K18	2264	B10	2280	F10	2297	C 8	2408	G20	2526	L14	3104	J14	3132	I 21	3271	F12	3286	C 7	3406	E16	3416	H17	3425	
1005	I10	2006	E 1	2108	I15	2123	L18	2265	C10	2285	F13	2298	C14	2409	H18	2527	L 4	3106	L19	3268	B 6	3278	B12	3287	J 8	3407	C16	3417	C17	3426	
1103	J13	2007	E 2	2109	I15	2124	K17	2266	C10	2286	F12	2401	B1	2503	K 3	3009	F 3	3107	K19	3259	B 7	3279	B14	3289	F13	3409	H18	3418	G17	3427	F
1104	I14	2010	G 2	2110	H 3	2125	K17	2267	C11	2287	F12	2402	F16	2507	L 4	3010	F 3	3111	J20	3262	C 6	3280	B14	3290	F12	3410	H17	3419	E17	3428	D
1262	C 7	2101	I 20	2111	K20	2258	B 7	2270	B11	2290	F14	2403	D16	2520	K18	3011	F 3	3113	K20	3263	C 8	3281	B13	3291	F11	3411	H17	3420	B17	3429	B
1267	C11	2102	I 20	2113	J20	2259	B 8	2272	F 9	2291	F14	2404	H17	2521	K 4	3059	L 8	3114	K20	3264	B10	3282	B13	3402	C16	3412	C16	3421	G17	3430	A

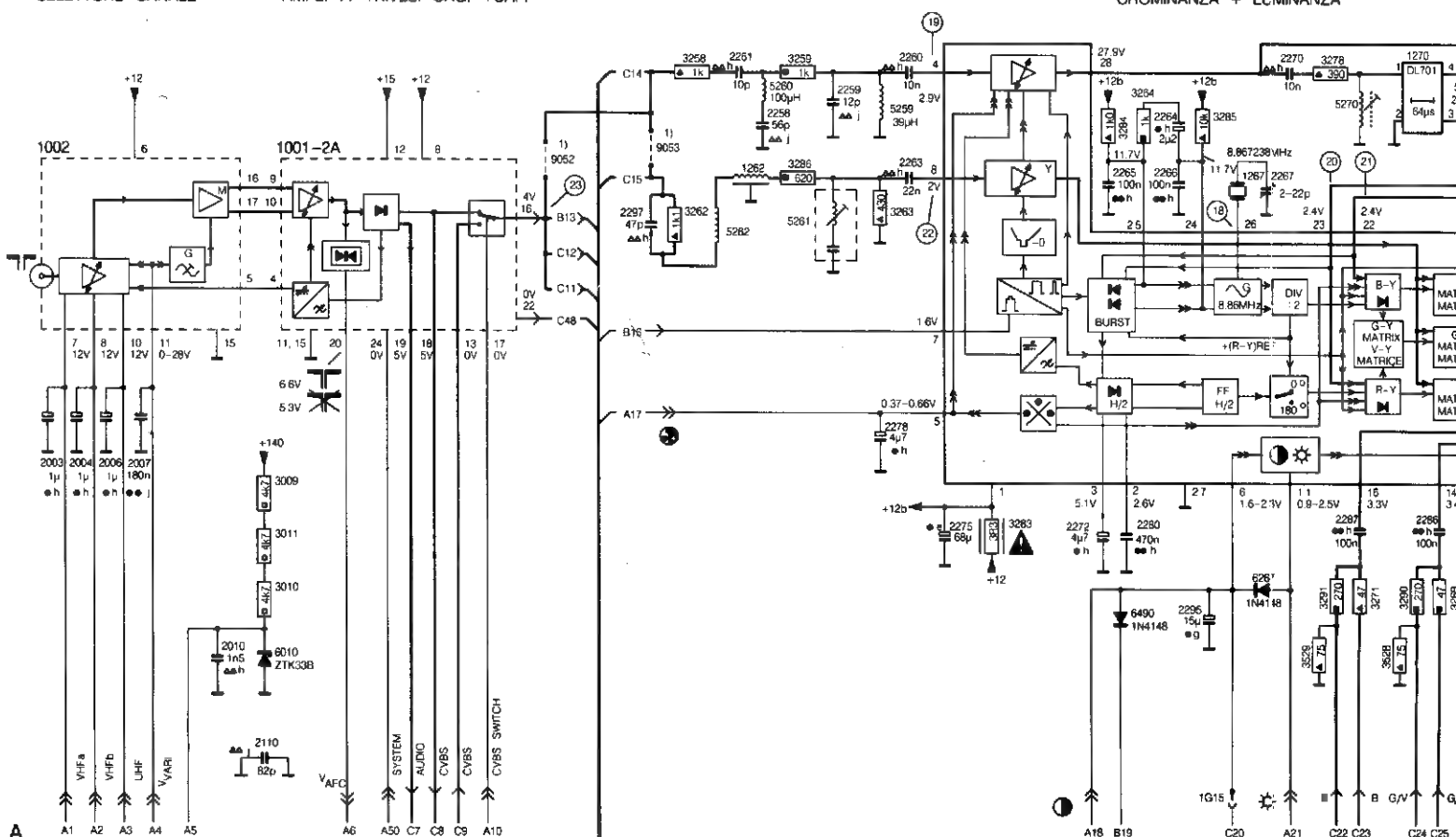
1 2 3 4 5 6 7 8 9 10 11 12

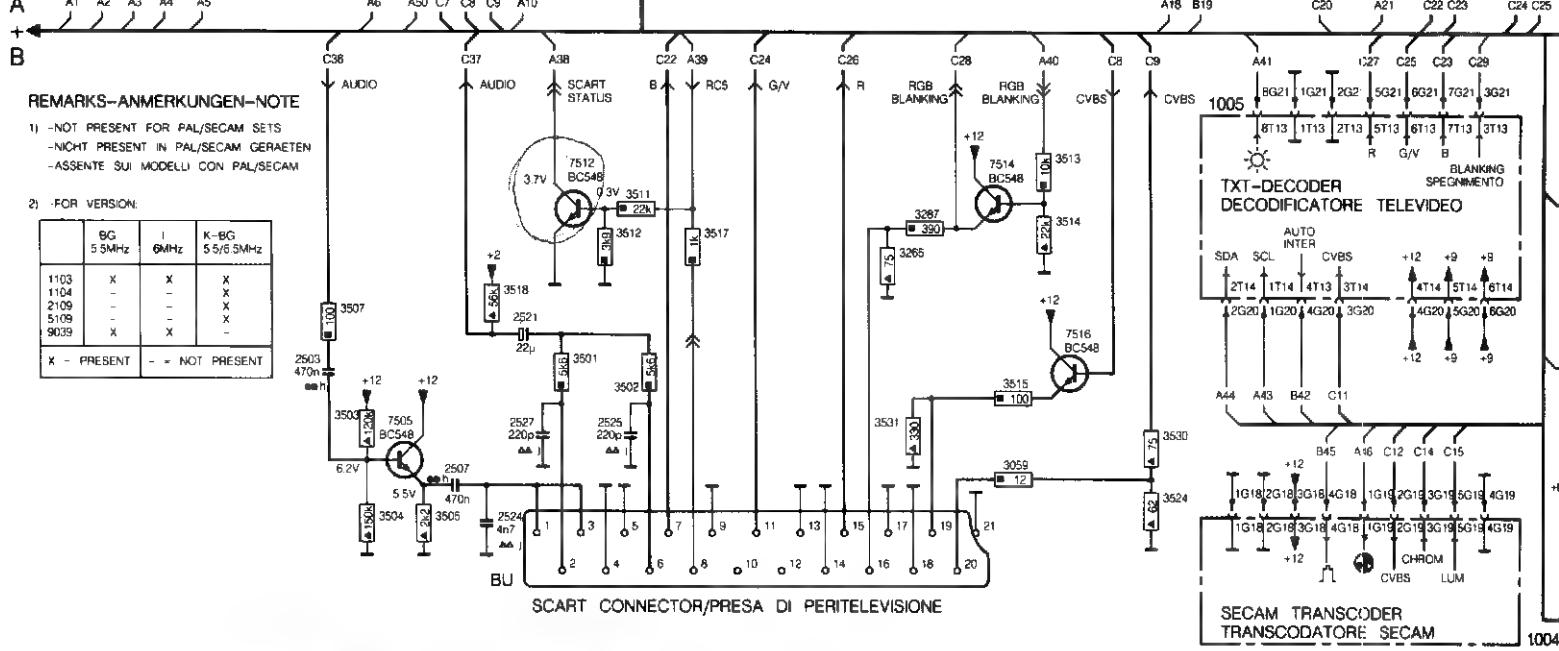
DIAGRAM–SCHALTBILD–SCHEMA C

CHANNEL SELECTOR
KANALWAEHLER
SELETTORE CANALE

IF AMPL.+DET. +AGC. +AFC.
ZF VERST. +DEM. +AVR. +AFA.
AMPL. FI +RIVEL. CAG. +CAF.

CHROMINANCE + LUMINANCE
FARBART + LEUCHTDICHTE
CROMINANZA + LUMINANZA





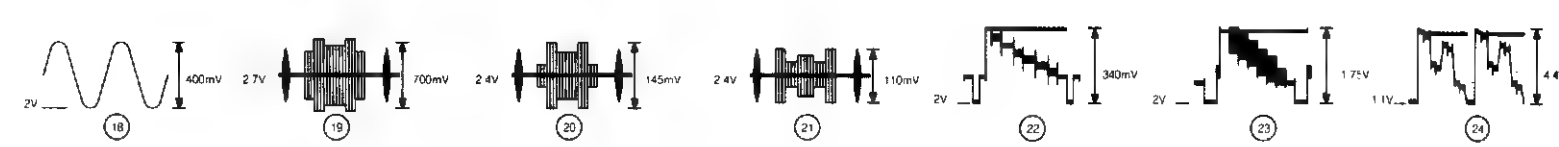
REMARKS–ANMERKUNGEN–NOTE

1) -NOT PRESENT FOR PAL/SECAM SETS
-NICHT PRESENT IN PAL/SECAM GERAETEN
-ASSENTE SUI MODELLI CON PAL/SECAM

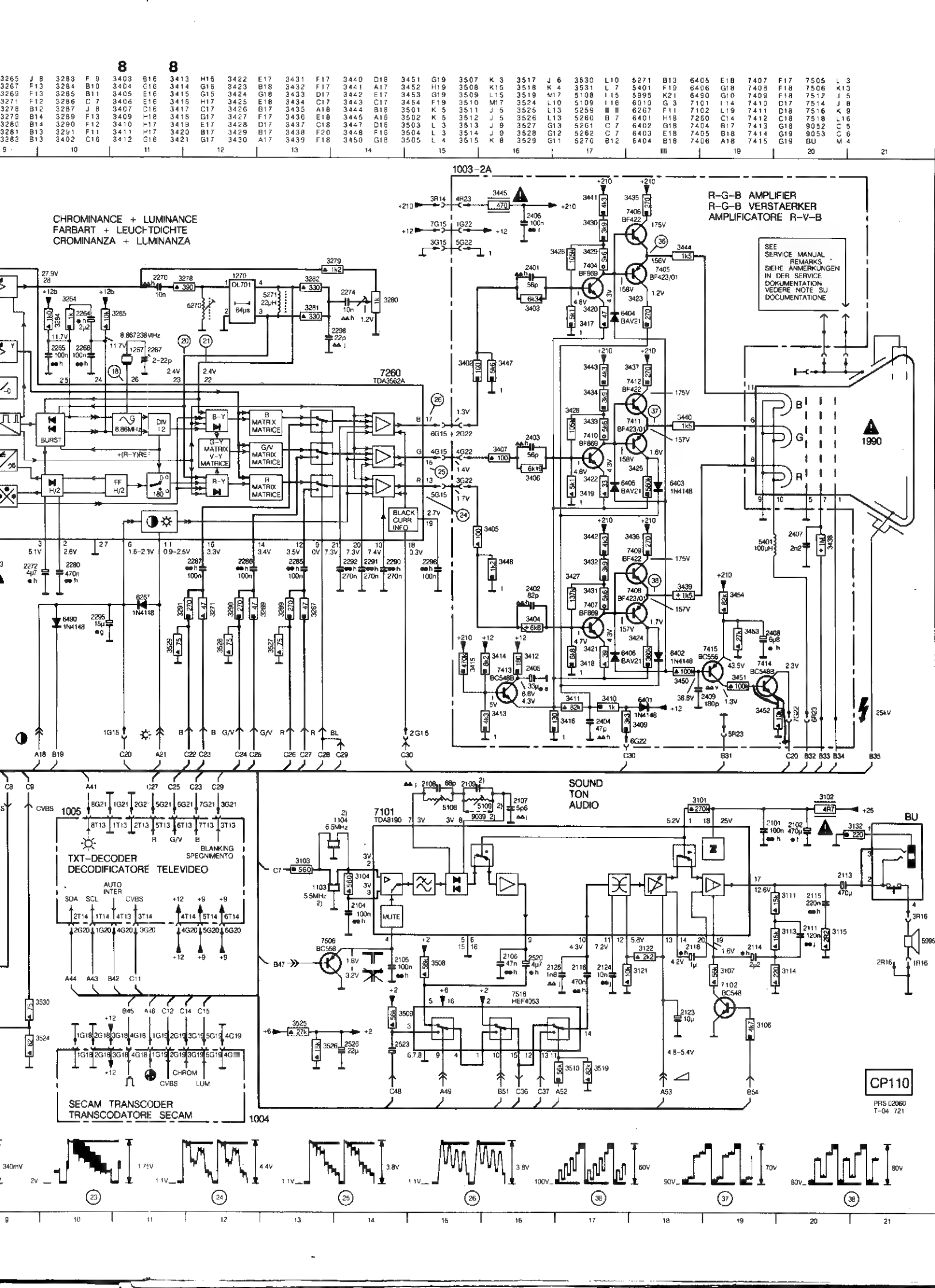
2) -FOR VERSION:

	BG 5.5MHz	I 6MHz	K-BG 5.5/6.5MHz
1103	X	X	X
1104	-	-	X
2109	-	-	X
5109	-	-	X
9039	X	X	-

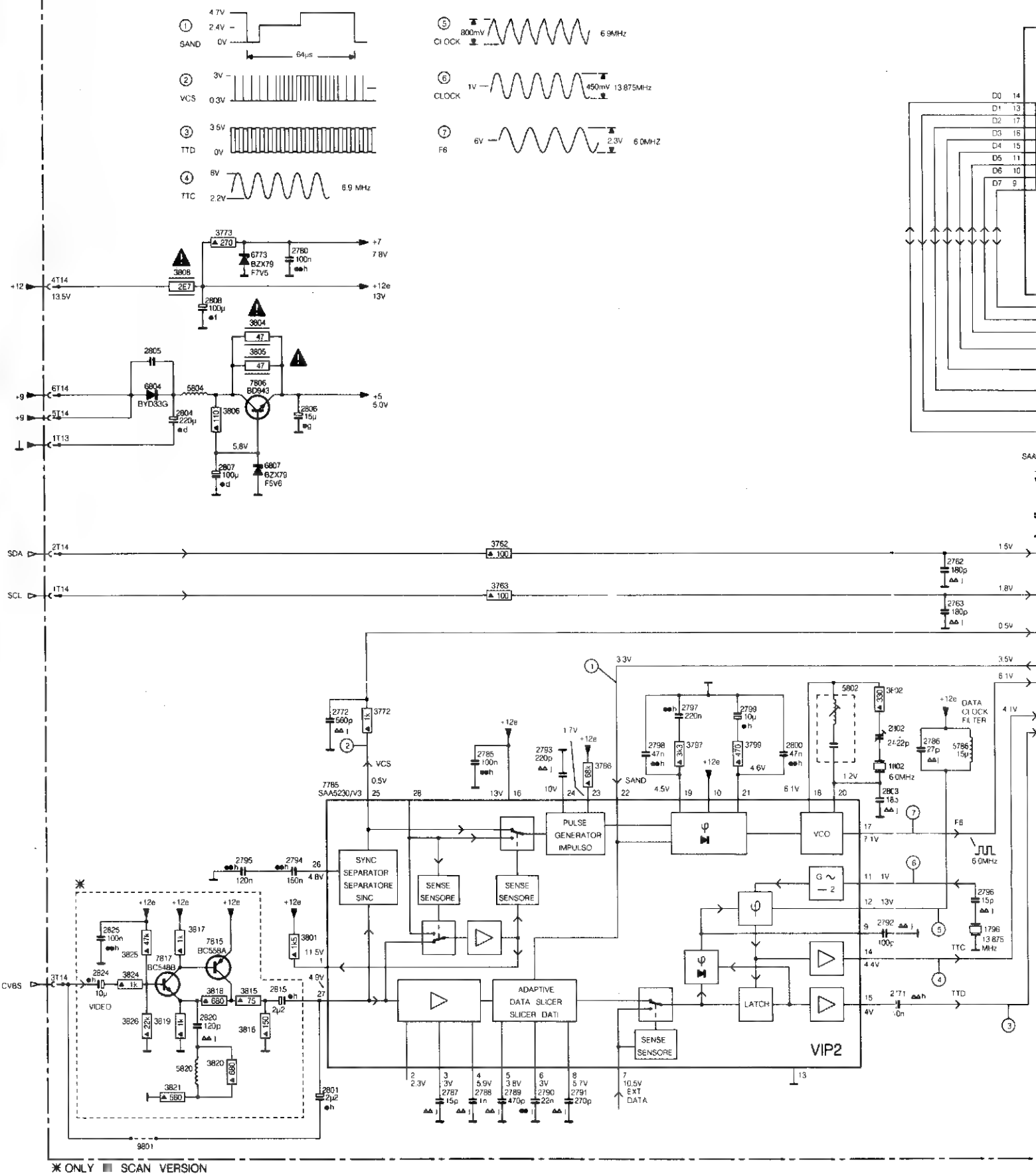
X = PRESENT - = NOT PRESENT



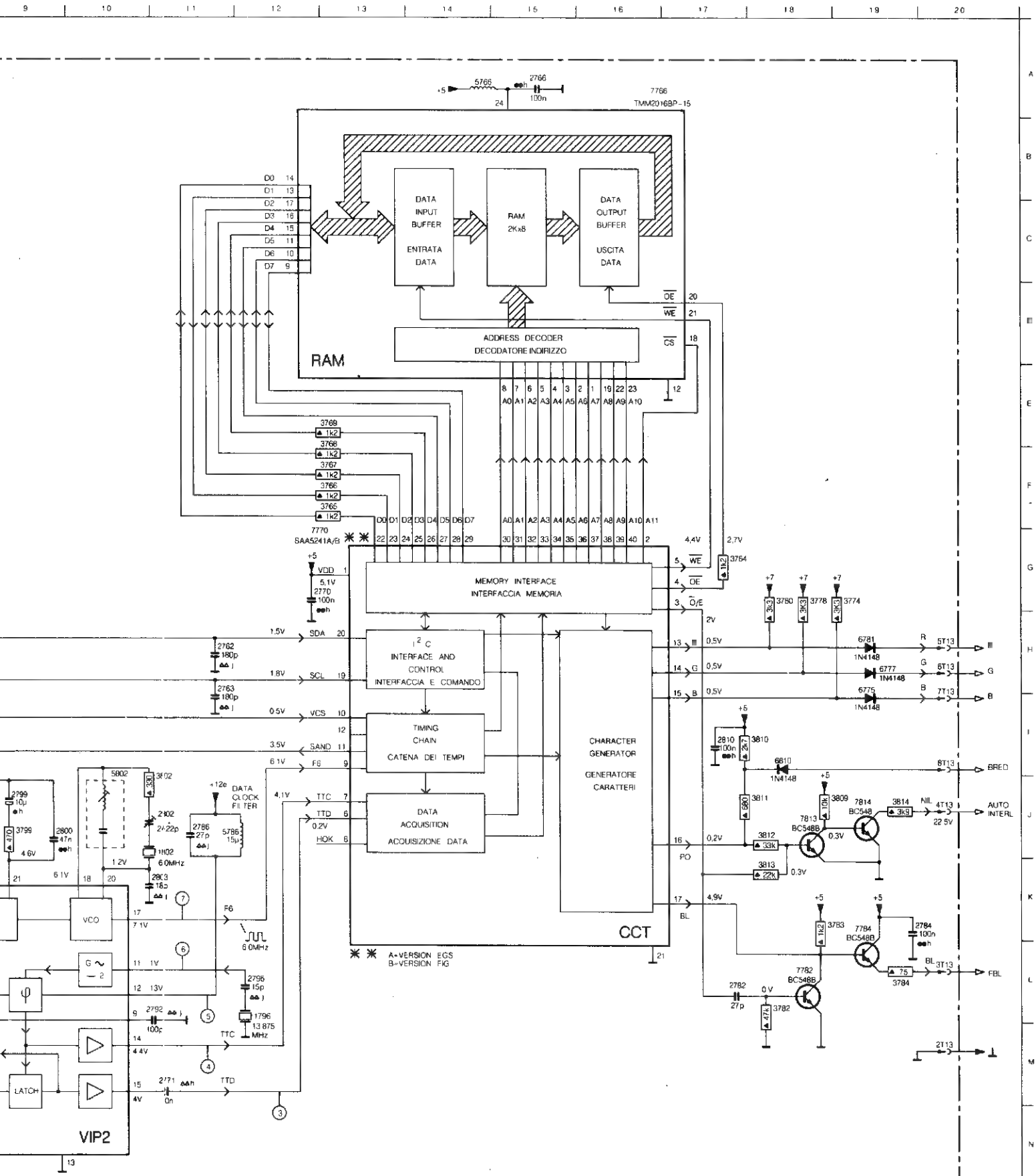
1 2 3 4 5 6 7 8 9 10 11 12


CHROMINANCE + LUMINANCE
FARBART + LEUCHTDICHTE
CROMINANZA + LUMINANZA
1003-2A
R-G-B AMPLIFIER
R-G-B VERSTAERKER
AMPLIFICATORE R-V-B
SEE SERVICE MANUAL REMARKS
SIEHE ANMERKUNGEN IN DER SERVICE DOKUMENTATION
VEDERE NOTE SU DOCUMENTATIONE
7260
TDA3562A
BURST
B MATRIX MATRICE
G/V MATRIX MATRICE
R MATRIX MATRICE
BLACK CURR INFO
1990
1005
TXT-DECODER
DECODIFICATORE TELEVIDEO
BLANKING
SPEGNIMENTO
SECAM TRANSCODER
TRANSCODATORE SECAM
1004
SOUND
TON
AUDIO
7101
TDA8190
7518
HEF4053
CP110
PRS 02060
T-04 721

1005 CCT–DECODER/DECODATORE



✳ ONLY ■ SCAN VERSION


RAM
DATA INPUT BUFFER
ENTRATA DATA
RAM 2Kx8
DATA OUTPUT BUFFER
USCITA DATA
ADDRESS DECODER
DECODATORE INDIRIZZO
7766 TMM2016BP-15
7770 SAA5241A/B
MEMORY INTERFACE
INTERFACCIA MEMORIA
I²C INTERFACE AND CONTROL
INTERFACCIA E COMANDO
TIMING CHAIN
CATENA DEI TEMPI
DATA ACQUISITION
ACQUISIZIONE DATA
CHARACTER GENERATOR
GENERATORE CARATTERI
CCT
VIP2
VCO
LATCH
DATA CLOCK FILTER
A=VERSION EGS
B=VERSION FIG
THE DC VOLTAGES ARE MEASURED WITH A PATTERN GENERATOR AND THE TV SET IN TELETEXT MODE
CP110
PRS 02503
T12/721

TXT DECODER

SAA5241B	4822 209 82785
SAA5241A	4822 209 82819
SAA5231/V3	4822 209 71491
TMM2016BP-15	4822 209 71527

BC548B	4822 130 60529
BC559	4822 130 40963
BD943	5322 130 44921

BYD33G	4822 130 42489
BZX79-F5V6	4822 130 34173
BZX79-F7V5	4822 130 80135
1N4148-75	4822 130 33939

5766	4822 157 51462
5786	4822 157 52224
5804	4822 157 51157
5820	4822 157 53001

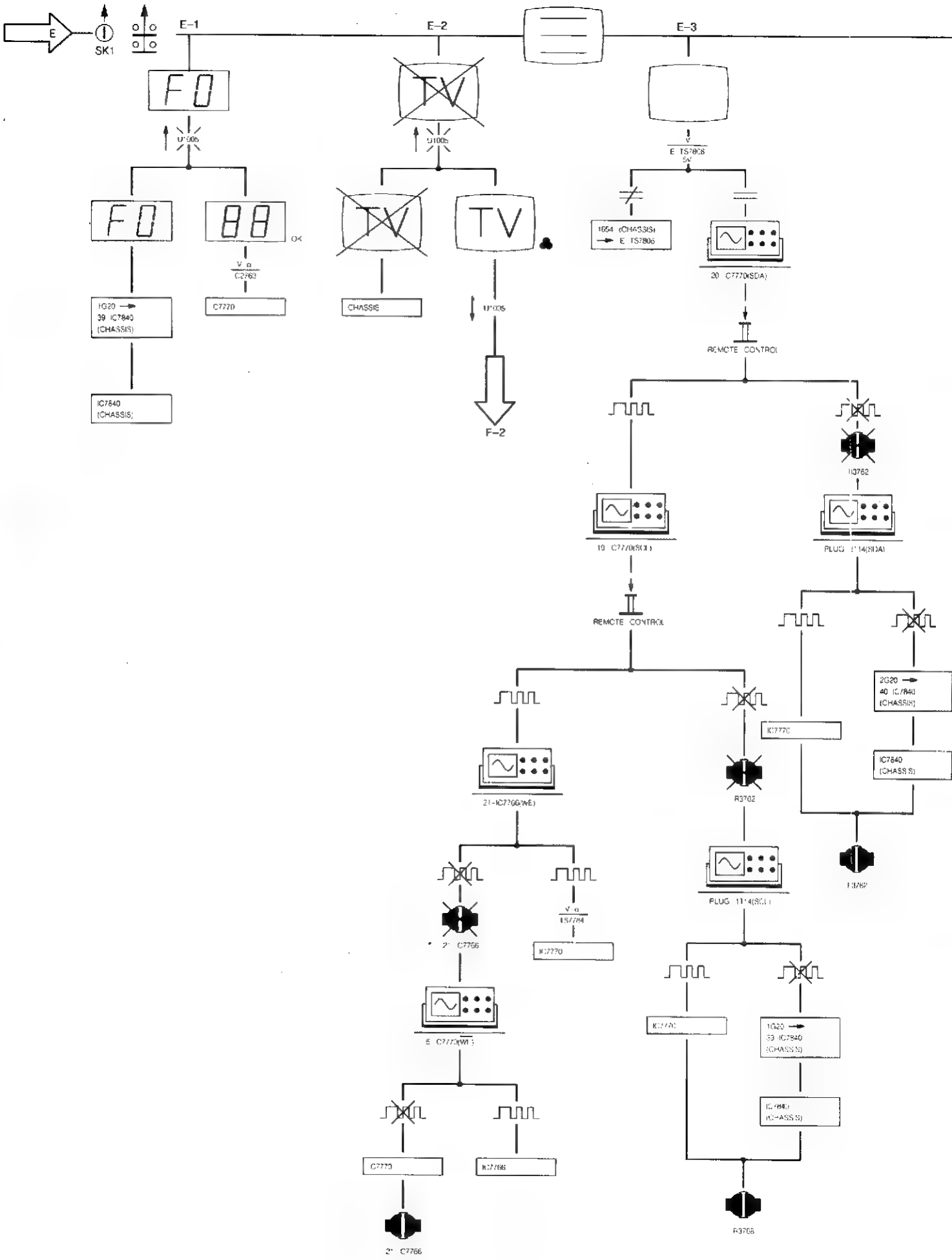
3804	4822 111 30526
3805	4822 111 30526
3808	4822 111 30494

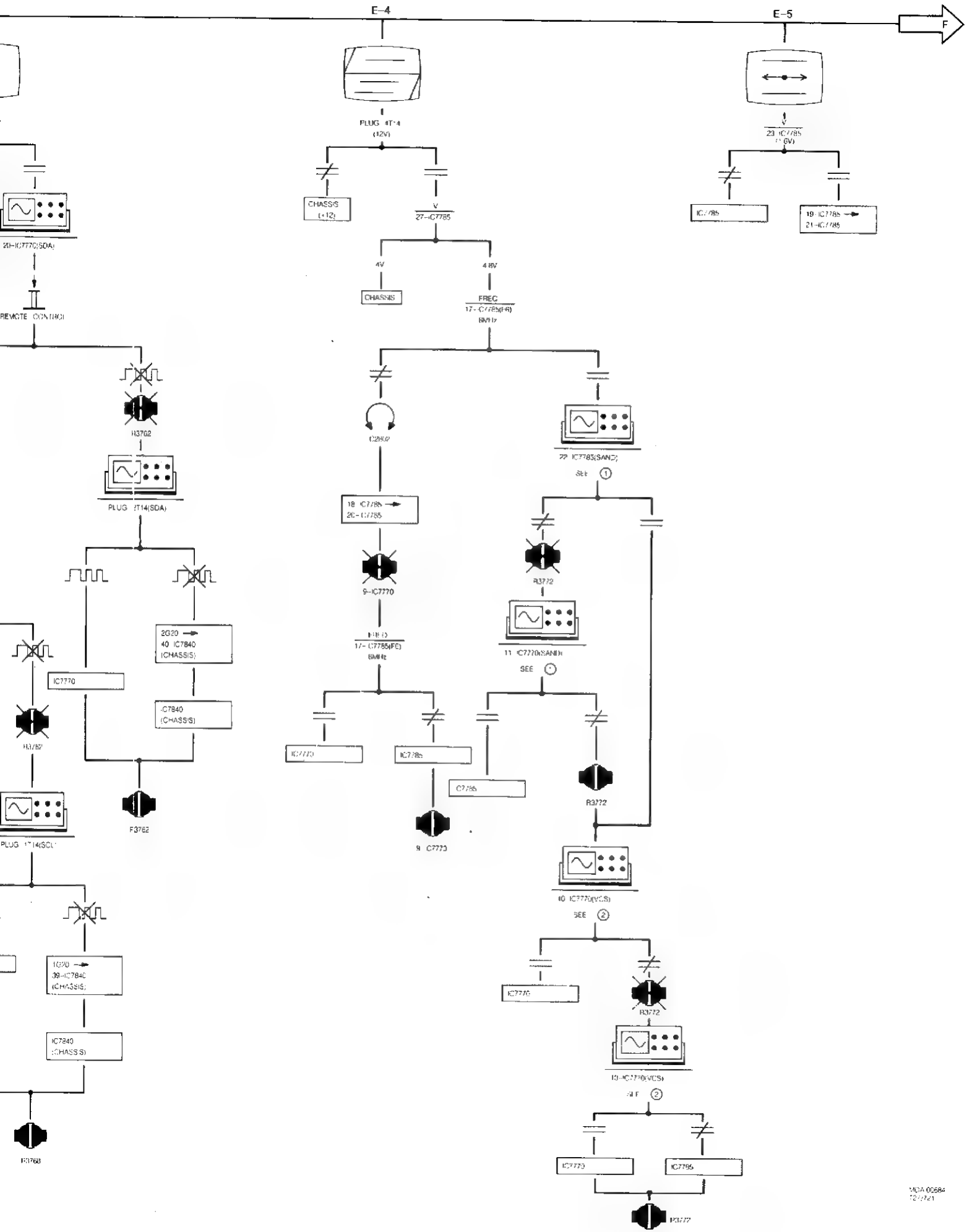
2782	4822 122 32192
2786	4822 122 32192
2787	4822 122 31197
2796	4822 122 31197
2799	4822 124 40435
2802	4822 125 50045

VARIOUS

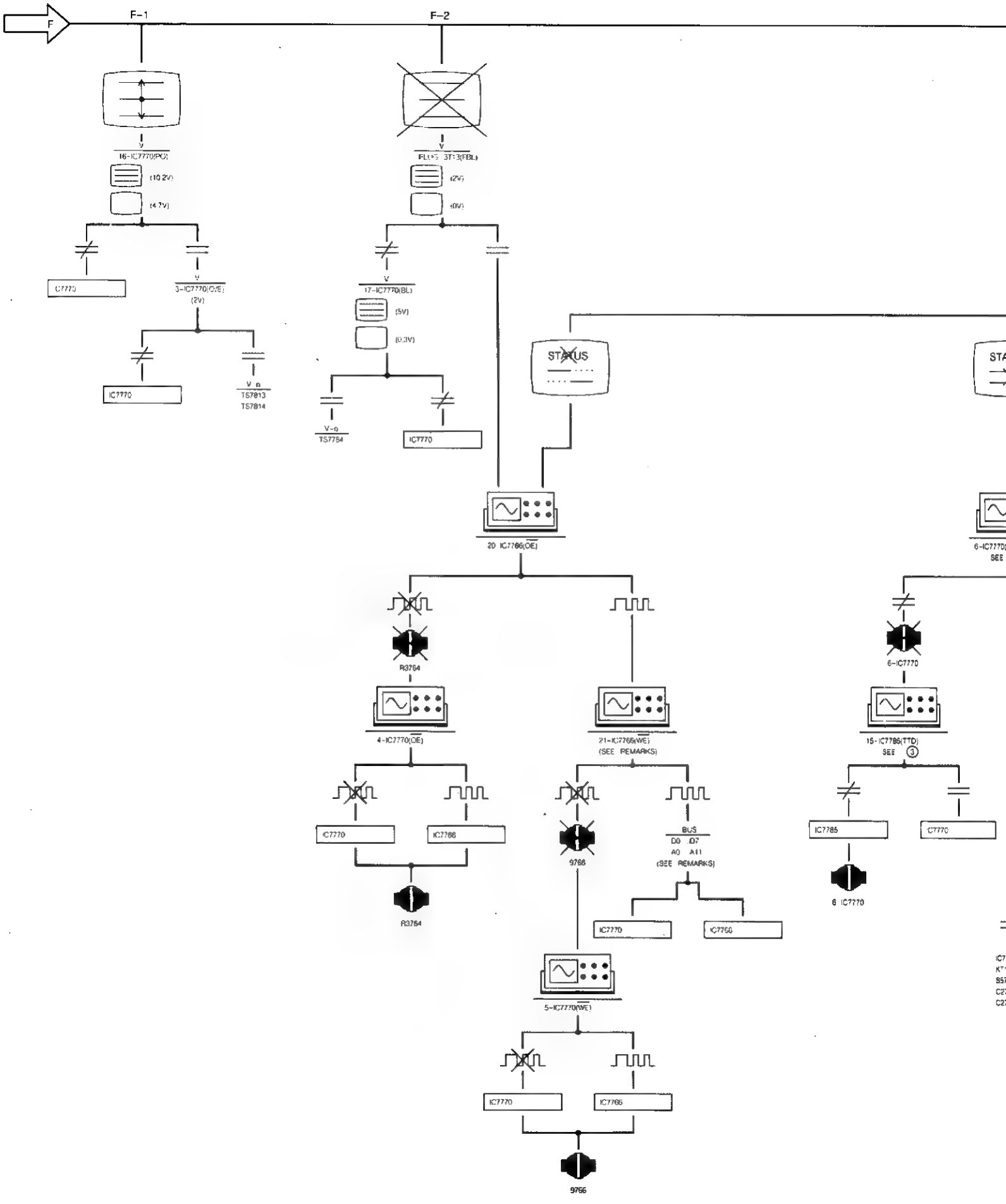
1796	4822 242 71417	crystal 13,875 MHz
1802	4822 242 70932	resonator 6,0 MHz

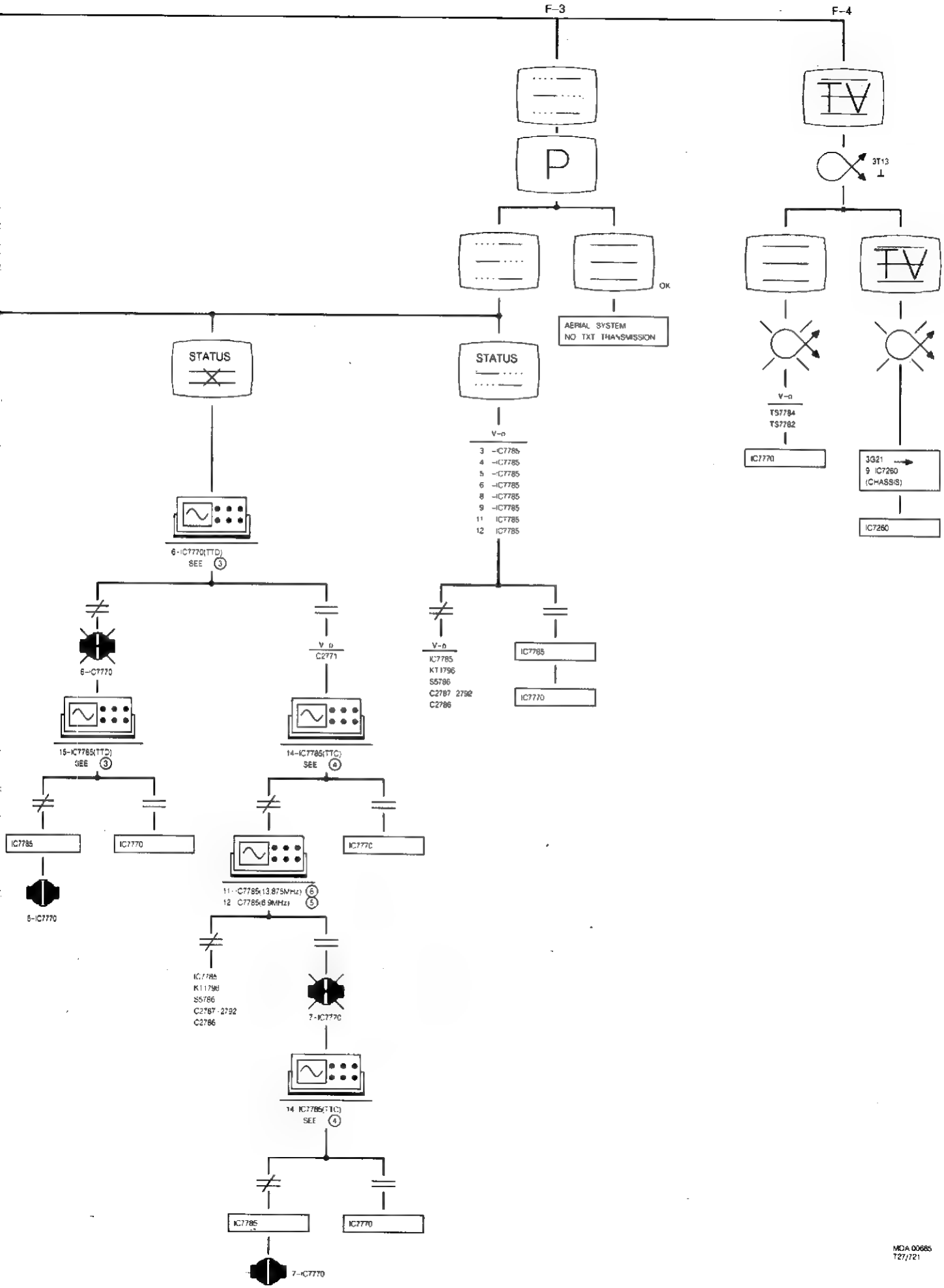
T13	4822 265 40471	8P
T14	4822 265 40469	6P


E
SK1
E-1
E-2
E-3
F0
TV
F0
88
OK
TV
TV
IG20
39 IC7840
(CHASSIS)
IC7840
(CHASSIS)
C7770
CHASSIS
F-2
1654 (CHASSIS)
E TS7806
20 C7770(SDA)
REMOTE CONTROL
R3762
19 C7770(SCL)
REMOTE CONTROL
2G20
40 IC7840
(CHASSIS)
IC7770
IC7840
(CHASSIS)
R3702
R3766
IC7770
IC7770
IC7840
(CHASSIS)
R3766


E-4
E-5
F
PLUG 4T14
(12V)
CHASSIS
(+12)
V
27-IC7785
4V
4.8V
CHASSIS
FREC
17-IC7785(F6)
8MHz
23 IC7785
(+5V)
IC7785
19-IC7785
21-IC7785
20-IC7770(SDA)
REMOTE CONTROL
R3762
PLUG 2T14(SDA)
2G20
40 IC7840
(CHASSIS)
IC7770
IC7840
(CHASSIS)
R3762
PLUG 1T14(SCL)
1G20
39-IC7840
(CHASSIS)
IC7840
(CHASSIS)
R3760
D2802
18 IC7785
20-IC7785
9-IC7770
FREQ
17-IC7785(F6)
8MHz
IC7770
IC7785
9 IC7770
22 IC7785(SAND)
SEE 1
R3772
11 IC7770(SAND)
SEE 1
IC7785
R3772
10 IC7770(VCS)
SEE 2
IC7770
R3772
10-IC7770(VCS)
SEE 2
IC7770
IC7785
R3772

MDA 00684

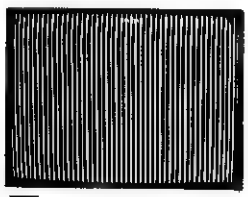

F
F-1
F-2
16-IC7770(PO)
(10.2V)
(4.7V)
IC7770
3-IC7770(O/E)
(2V)
IC7770
TS7813
TS7814
17-IC7770(BL)
(5V)
(0.3V)
TS7754
IC7770
STATUS
20 IC7766(OE)
R3764
4-IC7770(OE)
IC7770
IC7766
R3764
21-IC7766(WE)
(SEE REMARKS)
9766
BUS
D0 D7
A0 A11
(SEE REMARKS)
IC7770
IC7766
5-IC7770(WE)
IC7770
IC7766
9766
6-IC7770
15-IC7785(TTD)
SEE 3
IC7785
IC7770
6 IC7770

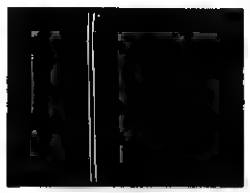


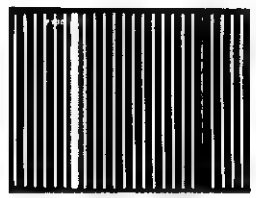
MDA 00685
T27/721

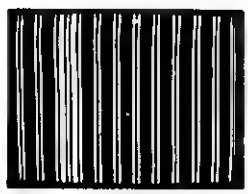
LOCATING BUS ERRORS IN THE TELETEXT DECODER

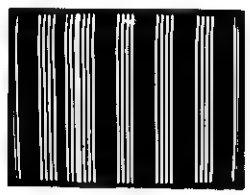
1. Loosen resistor 3784 on teletext decoder 1005. Connect a piece of wire with measuring pin to pin 9 of IC7260.
2. Connect a TV pattern generator (i.e. PM5519) and tune the receiver normally.
   Apply a white pattern and select the teletext mode with the remote control.
3. When transferring the measuring-pin to the points of IC7770 which are indicated under the pictures below a defined pattern is not present, but a uniform white or dark picture arises, there is question of short-circuit or an open connection on the relevant point. It may be coused by one of the two ICs, namely IC7766 - IC7770.

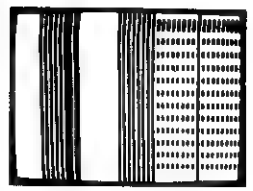

$\overline{OE}$ 4-IC7770

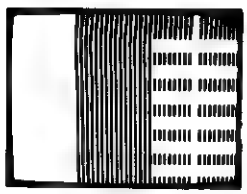

$\overline{WE}$ 5-IC7770

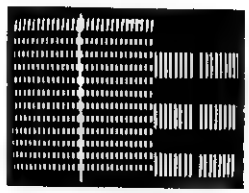

A0 30-IC7770

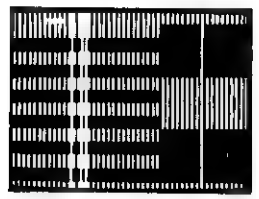

A1 31-IC7770

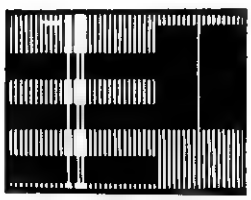

A2 32-IC7770

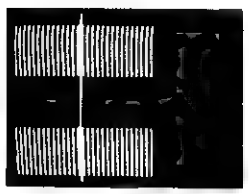

A3 33-IC7770

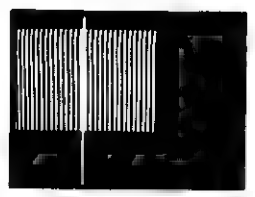

A4 34-IC7770

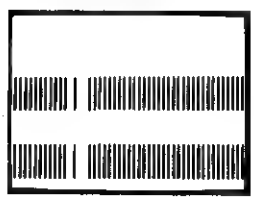

A5 35-IC7770

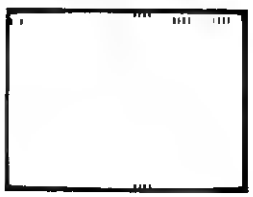

A6 36-IC7770

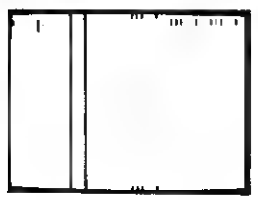

A7 37-IC7770


A8 38-IC7770

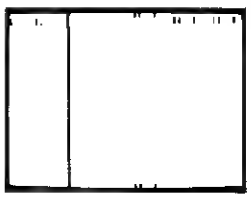

A9 39-IC7770

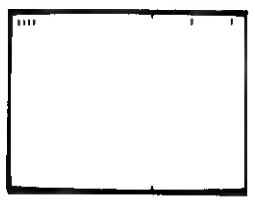

A10 40-IC7770

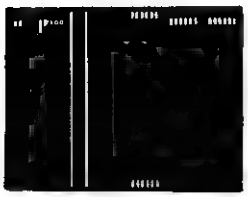

D0 22-IC7770

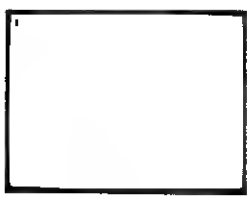

D1 23-IC7770

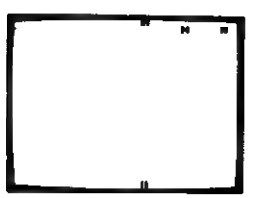

D2 24-IC7770


D3 25-IC7770


D4 26-IC7770


D5 27-IC7770


D6 28-IC7770


D7 29-IC7770

QUICK DIAGNOSIS CHART

Indication on programme display Indikation auf Programm Anzeige	Incorrect functioning Unrichtiges Funktionieren	Correct functioning Richtiges Funktionieren	Possible defective component Eventuelle schadhafte Komponente
F0			IC7770 C2763 (U1005) IC7840
F1			+12 supply +12 Speisung IC7840
F2			IC7840
F3			IC7840
88 O.K.	R.C. commands Fernbedienungs-befehle	Local keyboard commands Nahbedienungs-befehle	U1003 (IR-receiver)
88 O.K.			IC7865

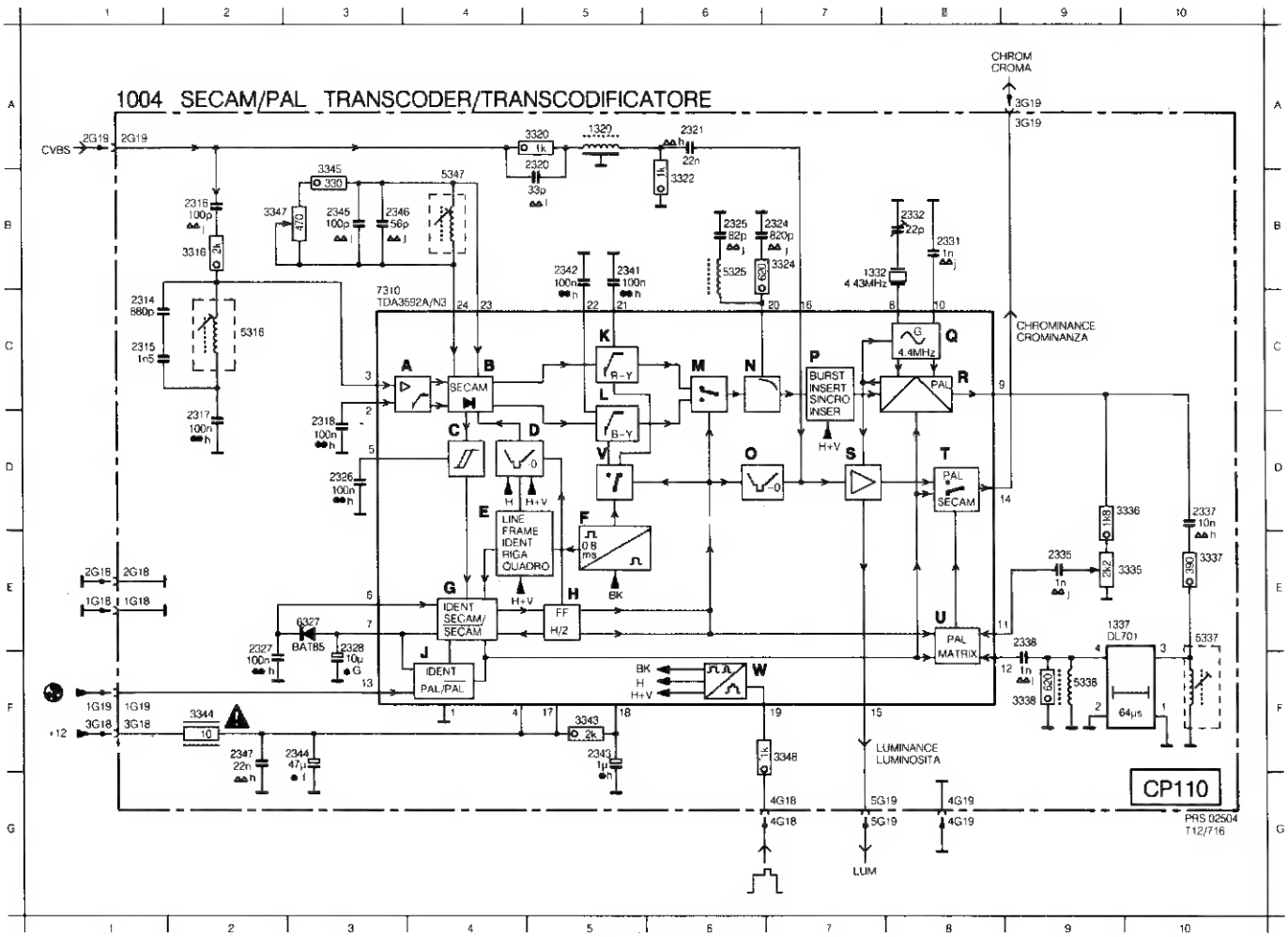
SECAM/PAL TRANSCODER

		
TDA3592A/N3	4822 209 11389	
		
BAT85	4822 130 31983	
		
5316	4822 156 10998	
5325	4822 156 21125	
5337	4822 156 21027	
5338	4822 157 52278	
5347	4822 157 53046	
		
3335	4822 100 21049	2.2 kΩ potm.
3344	4822 111 30508	10 Ω 0.33 W
3347	4822 101 10651	470 Ω potm.
		
2314	4822 121 42995	680 pF 100V
2315	4822 121 42994	1.5 nF 100V
2328	4822 124 40435	10 µF 50V
2332	4822 125 50045	20 pF trimm.
VARIOUS		
1320	4822 157 53047	delay line DL450S
1332	4822 242 70323	crystal 4.43 MHz
1337	4822 320 40096	delay line DL701
		
G18	4822 266 30276	4P
G19	4822 265 40503	5P

QUICK DIAGNOSIS CHART

Indication on programme display Indikation auf Programm Anzeige	Incorrect functioning Unrichtiges Funktionieren	Correct functioning Richtiges Funktionieren	Possible defective component Eventuelle schadhafte Komponente
F0			IC7770 C2763 (U1005) IC7840
F1			+12 supply +12 Speisung IC7840
F2			IC7840
F3			IC7840
88 O.K.	R.C. commands Fernbedienungs-befehle	Local keyboard commands Nahbedienungs-befehle	U1003 (IR-receiver)
88 O.K.			IC7865

1320	A 5	2315	C 1	2320	A 5	2326	D 3	2332	B 8	2341	B 5	2345	B 3	3320	A 5	3336	D10	3344	F 2	5316	C 2	5347	B 4
1332	B 7	2316	B 2	2321	A 6	2327	E 2	2335	E 9	2342	B 5	2346	B 3	3322	B 6	3337	E10	3345	B 3	5325	B 6	6327	E 3
1337	E10	2317	D 2	2324	B 7	2328	E 2	2337	D10	2343	F 5	2347	F 2	3324	B 7	3338	F 9	3347	B 2	5337	E10	7310	C 3
2314	C 1	2318	D 3	2325	B 6	2331	B 8	2338	E 9	2344	F 3	3316	B 2	3335	E10	3343	F 5	3348	F 7	5338	F 9		



ADJUSTMENTS SECAM/PAL TRANSCODER

1. "Circuit cloche"

Disconnect jumper 9302 at one side.
Apply a signal of a signal generator to capacitor 2316.
Adjust the frequency of the signal generator for 4.286 MHz. Connect an oscilloscope to pin 3 of IC7310.
Adjust 5316 for maximum amplitude.

2. Subcarrier oscillator

Apply a 75% SECAM colour bar pattern.
Connect 6-IC7310 by means of a 10k resistor to ground.
Connect a frequency counter with a high input impedance (via a probe C ≤ 2pF) to pin 26-IC7260.
Adjust 2332 for a frequency of 8.867236 MHz.

3. SECAM DEMODULATOR

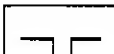
Apply a SECAM black frame signal.
Connect an oscilloscope to pin 14 of IC7310.
Adjust 3347 and 5347 for a minimum modulation.

4. Delay line

a. *Amplitude*
Apply a SECAM red frame signal. Connect an oscilliscope to pin 28 of IC7260.
Adjust 3335 for an equal amplitude of the lines.

b. *Phase*
Adjust for a normal brightness and contrast.
Connect an oscilloscope to pin 17 of IC7260.
Apply a 75% colour bar pattern.
Adjust the saturation control for an as flat as possible output voltage.
Then apply a 75% SECAM colour bar pattern.
Adjust 5337 so that the signal is virtually flat.

SYMBOLS FOR FAULT-FINDING TREES

	Supply aerial signal (colour)		Normal sound		Line frame (Venetian blinds)
	Remove aerial signal		No or weak sound		Heavy horizontal bars
	Connect generator colour signal		No sound		Unstable TV picture
	Carry out voltage measurements		Sound distorted		Inject with frequency 2 half volume
	Carry out resistance (Ohmic) measurements		Connect black / white picture		... doesn't work
	Check ...		No or weak picture		Tune in ... Band
	Correct		Uniformly discoloured frame with no or weak picture		Colours
	Incorrect		Picture discoloured uniformly		One or two colours weak or not present
	Check circuit between .... and		Vertical amplitude too small or too large		Weak colours
	Set ...		Horizontal amplitude too small or too large		No colours
	Set ...		No vertical deflection		Switch the set on
	Remove unit		No vertical synchronisation		Correct television colour picture
	Insert unit		No horizontal synchronisation		TV-mode
	Connect the points A and B		Horizontal centring incorrect		Teletext-mode
	Remove connection between points A and B		Vertikal centring incorrect		Teletext rows are missing or include incorrect characters
	Adjustment (general)		Vertikal linearity incorrect		Statusrow is correct, other TXT-rows are missing
	Adjustment yields no result		The left and right vertical lines are curved		Statusrow is correct, other rows include errors
	Filament of picture tube glows		No horizontal deflection		Statusrow is not correct, other rows include errors
	Filament of picture tube does not glow		No synchronisation		Select other programm
	Too much light		Colour blurrs in black / white picture		Unsynchronized TXT-picture
	Insufficient light		Strong colour noise in black / white picture		Teletext picture moves left / right
	No light		Correct sequence of colours		Teletext picture moves up / down

IC...	Replace IC ...		No or weak horizontal bars
	Desolder ...		Vertical lines are curved no TV picture no synchronisation
	Resolder ...	F...	Error indication on display
	Measure the signal / oscillogram	88 OK	Programme display correct
Freq ... Hz	Measure frequency		No teletext
	Pulse / pulse train present	OK	Teletext correct
	Pulse / pulse train not present		Mixed teletext and TV picture
BUS	Check lines ... for bus errors		
	Depress key ...		
≈ ...	Is approximately equal to ...		
= ...	Is equal to ...		
≠ ...	Is not equal to ...		